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“For the whole grade’s common good and based on the student’s own current situation.”

Differentiated teaching and the choice of methods among Finnish teachers

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“For the whole grade’s common good and based on the student’s own current situation.”

Differentiated teaching and the choice of methods among Finnish teachers

The purpose of this research was to study how teachers do differentiated teaching in practice. The main research question was: How do Finnish teachers do differentiated teaching? It was specified with sub-questions: (1) How are the various elements of the model of differentiated teaching emphasized by teachers?; (2) Which methods do teachers use in differentiated teaching?; and (3) On what basis do teachers make decisions of differentiated teaching? The data were collected from teachers (N=40) working in municipalities across Finland with a survey that was based on a model of differentiated teaching (a so-called five-O model by Roiha and Polso). All dimensions of differentiated teaching were highlighted by teachers. Teachers implemented differentiated teaching mainly based on students’ needs. It was worrying that lack of resources appeared in teachers’ answers consistently within the elements of differentiated teaching. The findings are usable in the international discussion about differentiated teaching and its implementation.

Keywords: differentiated teaching; differentiation; inclusion; Finland; basic education

Introduction

During the last decades, the awareness of the personal consequences for students who have been identified as having special educational needs and disabilities has grown (Warnock, Norwich, & Terzi, 2010). Special educational needs may lead to segregated and stigmatising educational arrangements (e.g. Pilj, 2014). On the other hand, also many students with diverse needs may be left without support or confront disapproval attitudes, if special education teacher is not available or teachers in mainstream classes are not able to teach heterogeneous classes (Lumby & Coleman, 2016). Inclusive education calls for developing new ways of teaching and working collaboratively with

colleagues in mainstream (Florian & Spratt, 2013). This research focused on one of the most important elements of inclusive education, differentiated teaching. The purpose of this research was to find out how Finnish teachers implement differentiated education in practice and on what basis they differentiate their teaching.

Our research is located in Finland. The Finnish school system is based on the idea of welfare society meaning that education is free for everyone and organized by municipalities. The Core Curriculum for Basic Education (The National Board of Finland, 2014) guides the organization of education but schools and teachers make the local decisions of teaching arrangements. In Finnish basic education, teaching methods should be based on objectives set for teaching and learning. However, students' needs, skills, and interests influence the selection of methods. The Core Curriculum is a tool for teachers' work mentioning that differentiation is one of the most important means of choosing teaching methods. Differentiated teaching is considered a pedagogical principle of teaching.

In education, inclusion means the identification and removal of learning barriers. For many, educational inclusion also means feelings of belonging to your school community (e.g., Booth & Ainscow, 2002). What is crucial in inclusive education is that it is not about adapting diverse students to the existing system but transforming schools to respond to the needs of various students (Lakkala, Uusiautti, & Määttä, 2016; 2018; Lumby & Coleman, 2016). Structural and cultural modifications in schools are also the prerequisites for developing teachers' pedagogical methods because singular teachers are dependent on the resources and possibilities to collaborate when designing learning environments for diverse learners (Lakkala et al., 2016; Slee, 2014).

The provision of support requires teachers to know their students and respond to their needs by differentiating teaching according to students' interests, readiness and

learning (e.g. Ryan & Deci, 2016). Teachers can differentiate through content, process, outcomes or the tone of the classroom. In general, differentiation shapes the learning environments, curricula, assessment, instruction and the degree of students' self-regulation (Tomlinson & Moon, 2013).

According to previous research, differentiated teaching prohibits learning difficulties, improves learning outcomes and offers students experiences of success (Kanevsky & Keighley, 2010; Reis, McCoach, Little, Muller, & Kraniskan, 2011; Karadag & Yasar, 2010). For example, Joseph, Thomas, Simonette, and Ramsook (2013) investigated 434 student teachers' learning outcomes and attitudes towards differentiated teaching in a curriculum studies course. One-half of the students received differentiated teaching and the other half of them were exposed to the whole-class instructional approach. At the end of the semester, students in the differentiated instruction groups achieved higher grades than their counterparts did.

In spite of the encouraging findings, several studies imply that implementing differentiated teaching is not an easy task for teachers. Teachers often confront obstacles in resources, such as time, materials, physical class spaces and personnel (Roiha, 2012; Lingard & Mills, 2007). In addition, teachers find it challenging to take into account students' various interests and preferences for studying in groups or alone etc. (Joseph et al., 2013). The lack of resources and teachers' pedagogical skills in heterogeneous classes may lead to declension to the quality of teaching and lower students' learning outcomes. For example, in a Finnish large-scale longitudinal study, the learning outcomes in classes with students with special educational needs (SEN) and students with any additional needs, both groups performed on Mean lower than the students in classes without SEN students (cf. Hienonen, Lintuvuori, Jahnukainen, Hotulainen, & Vainikainen, 2018). On the other hand, when Kalambouka, Farrell,

Dyson and Kaplan (2007) gathered a range of studies about the impacts of placing students with SEN to regular classes, they found out that 80 % of the research were neutral or positive concerning the learning outcomes or social development of the students with no additional needs. It seems inevitable that heterogeneous classes call for teachers who are able to do flexible solutions in constructing the learning environments for their students.

Differentiated teaching as a part of inclusive education

Tomlinson and Moon (2013) emphasize that differentiated teaching does not mean just activities that the teachers do when they have time for it. Indeed, the idea of inclusive education has changed the paradigm of teaching. The education system is not anymore a rigid organization where knowledge is “poured” into students (e.g. Peters, 2007).

Differentiation is a part of a dynamic process that involves all the children in the learning process (cf. Florian & Spratt, 2013).

In differentiated teaching, the purpose is to find the student’s current level of development and arrange teaching so that it offers suitable learning challenges (Peterson & Hittie, 2010; Tomlinson & Moon, 2013). Differentiated teaching is guided by the socio-constructivist, student-oriented viewpoint to teaching and learning. Constructivist conception of learning is based on the idea that students construct information and understanding themselves by building on the previously learned (Smith & Thorne, 2007), and the socio-constructivist learning concept complements the learning process by adding the social element to students development. Vygotsky (1978) considered learning as a social and cultural process. His theory of the zone of proximal development is closely connected with differentiated teaching. The purpose is to challenge students in the area where they are able to solve problems under more

advanced person's guidance or in collaboration with more capable peers but not yet alone (Chaiklin, 2003). Still, guided by the phases of a learning process, enough time for rehearsing the knowledge and automatizing the skills is also needed. Then the students work in the actual zone of development. By letting the students work in the actual zone of development is important also because it provides them experiences of success (e.g. Lakkala & Määttä, 2011).

The experiences of success are closely related to students' motivation. Good learning outcomes strengthen students' self-image and, in turn, promote motivational resilience and engagement to studies (Furrer, Skinner, & Pitzer, 2014). As Tomlinson and Moon (2013) express it, one can imagine students' asking themselves: What is the purpose of what we are doing here? Can I contribute to what we do here? When teachers are confronting the diverse learners in their group, in order to manage the teaching in a student-oriented way, they need to forget the assumptions of Gauss distribution and replace it with a concept of transformability (Florian & Spratt, 2013). Instead of concentrating to the learning difficulties of some students, the teachers need to implement their teaching by creating a framework that per se helps teachers to design their teaching in a flexible way that welcomes all learners (Spratt & Florian, 2015).

The teaching process forms a spiral, beginning from planning, continuing to implementation and assessment. In a differentiated classroom, the teacher reflects his/her pedagogical actions and adjusts them according to the students' reactions and outcomes (e.g. Korthagen, 2017). Tomlinson (2014) separates four dimensions of teaching that differentiated teaching builds on: the content (information and skills that are taught and considered worth learning); the process (how students internalize and understand the content); the outcome (how student show their learning, understanding, and skills); and emotions and environments (the classroom learning atmosphere)

(Tomlinson, 2014; see also Smith & Thorne, 2007). The content is flexibly constructed based on the curriculum, taking into consideration the students current learning phase and interests (Lakkala & Määttä, 2011). During the teaching and learning process, the teachers vary the intensity of instruction, using different kinds of peer groups, scaffolding, co-teaching or other methods, including utilizing the various physical environments and arrangements in them (e.g. Pollard, 2005). The aim is also to teach gradually self-management (Ryan & Deci, 2016) and meta-cognitive skills (Lingard & Mills, 2007) for students. The outcomes are dependent of the students' phase of learning and current skills and interests. Some students may produce a story by writing, while others illustrate their story by pictures and tell the story verbally (e.g. Peterson & Hittie, 2010). The classroom learning atmosphere consists of social and psychological learning environment that encourages the students to participate and express their opinions as well as supports its members (e.g. Ryan & Deci, 2016).

In our research, we planned the survey based on a so-called five-O model designed by Roiha and Polso (2018). The model of differentiated teaching is a practical tool designed for teachers and is based on the idea of noticing students' individualism widely on five different areas of education: (1) teaching arrangements; (2) learning environment; (3) teaching methods; (4) support materials for learning; and (5) evaluation of learning (Roiha & Polso, 2018). The name of the model (five-O model) comes from the Finnish language in which all five areas of education start with the letter O. The model is based on Tomlinson's (2014) definition of differentiated teaching but separates the four dimensions introduced above, to more concrete five dimensions. Like Tomlinson, the five-O model includes the underlying assumption of student-oriented teaching and addressing the differentiation of teaching to all students.

Method

The purpose of this research was to find out how teachers do differentiated teaching in practice. In addition to the teaching methods they use, the purpose was to study how the teachers explain their choices.

The main research question set for this research is: How do Finnish teachers do differentiated teaching?

The main research question was specified with following sub-questions:

- (1) How are the various elements of the model of differentiated teaching emphasized by teachers?
- (2) Which methods do teachers use in differentiated teaching?
- (3) On what basis do teachers make decisions of differentiated teaching?

To answer these question, a theory-based survey research method was chosen (see also Creswell, 2009; Fowler, 2002). This was considered the best way of reaching various teachers across the Finland. We will explain the actual survey and data collection procedures later in this chapter.

This was a theory-based research. The wide definition of differentiated teaching functioned as the basis of the research, and especially, the model of differentiated teaching, a so-called five-O model designed by Roiha and Polso (2018), served as the basis of survey design.

Survey research is a quantitative research approach that pursues generalizable information (see e.g., Krosnick, 1999). Usually, the research wants to answer questions like how much, why, how often, etc., and provide numerical information about the phenomenon under investigation (Heikkilä, 2014). One of the core methods of survey research is to use questionnaires, which was the case in this research, too. The data were

collected in the form of a questionnaire among a group of people who represented a specific population, elementary and secondary school teachers in Finland.

The selection process of teachers was carefully designed, and therefore, this research did not focus on all Finnish teachers but specific samples, which is suitable where there are appropriate reasons for sampling (see Heikkilä, 2014; Krosnick, 1999). In this research, teachers were selected through a municipality research provided by YLE (Yleisradio Ltd.). YLE serves under the Finnish parliament and is the national public service broadcast company owned by the Finnish government. In the municipality research, YLE obtained data and compared school resources in Finnish municipalities. Basic education is free of charge and provided by municipalities in Finland. The comparison included funding used for education, the number and qualification of teachers, availability of optional school subjects, funding used for learning materials, and the number of tablets and pc's in schools. Based on the comparisons, municipalities were rated from 1 to 5 stars. Municipalities were also divided into three types that were cities, densely populated municipalities, and countryside municipalities (YLE, 2018).

For this research, all municipalities that got rated as one-star and five-star municipalities (N=30) were tracked and within each municipality type, one one-star and one five-star municipality were randomly selected (with a raffle), which meant that altogether six municipalities were selected in the research. After that, the municipalities were contacted for the permission to research. The permission was given by five municipalities, which was considered sufficient for the research.

The questionnaire was sent via the municipality administration to teachers who were serving in the schools of each municipality at the moment of data collection. The survey was distributed by email, as it was an online questionnaire. Eventually, forty

teachers from elementary and middle schools participated in the research. Of them, 17 (43.6 %) were elementary school teachers; 10 (25.6 %) were subject teachers, and rest 12 (30.8 %) were other types of teachers, such as special education teachers or substitute teachers. It is difficult to evaluate the original population and therefore it is hard to estimate the influence of loss and response rates in this data. Krosnick (1999) reminds that this might not mean that the low number of participants would automatically meant that the data were invaluable or useless: “it is not necessarily true that representativeness increases monotonically with increasing response rate. Remarkably, recent research has shown that surveys with very low response rates can be more accurate than surveys with much higher response rates” (p. 540).

There was not any ready questionnaire available for this research, and therefore, the theory-based questionnaire was developed for this research. By using earlier research and theoretical background including the five-O model, the questionnaire was constructed based on the elements of differentiated teaching. The questionnaire included structured questions (N=13) and open-ended questions (N=13). Being aware of teachers being extremely busy and frequently asked to participate in research studies, the purpose was to design a questionnaire that they could fill out as quickly and as conveniently as possible. The structured questions included five-item Likert scales and focused on the dimensions of differentiated teaching and levels of using them. For example, the teachers were asked “How often do you use the following support materials?” evaluating each type of material with the scale ranging from “never” to “all the time”. The open-ended questions produced qualitative data that would help analyzing the numerical data from the structured questions and provide further information about teachers’ choices as they could explain their action in their own

words. For example, the aforementioned structured question was followed by an open-ended question “How do you select the support materials for teaching?”

As the questionnaire included structured and open-ended questions, the data analysis also followed the principles of quantitative and qualitative analyses. Data from structured questions were compared for frequencies and means. Answers could distribute quite widely between the scale “never” and “all the time” even though the Means between various elements of the differentiated teaching model were similar. Therefore, it was also important to study the numbers of extreme answers and medians (see also Heikkilä, 2014).

Theory-led content analysis was employed for the analysis of data from the open-ended questions (see also Mayring, 2000). This meant that the categories were readily adopted from the five-O model but within each category, analysis was data based. The data analysis progressed from reduction to categorization through finding expressions that could form categories and sub-categories. Also in this content analysis, frequencies were counted to find out how generally teachers tended to describe their solutions with the same words or expressions that were categorized into same category.

When it comes to reliability of the research, some questions are important to discuss. For example, the way of contacting the teachers could cause certain problems. Even though the letter wrote to teachers to prompt their replies explained that this was an independent research conducted by university researchers, they might have been hesitant in participating. On the other hand, since the questionnaire was distributed via email and was possible to fill out online, there is never a certainty who have answered the questions. However, the data received appeared reliable and especially the answers to open-ended questions confirmed that actual teachers had participated in the research.

The data were also rich and questionnaires were carefully filled out, and therefore, we did not have to omit any replies.

Results

According to our findings, teachers implemented differentiated teaching mainly based on their students' needs. It was worrying that poor resources was the only reason that appeared in teachers' answers in each element of the five-O model when describing the reasons for choosing a particular way of differentiating teaching.

As a whole, all five dimensions of differentiated teaching were reported by teachers. The Means describing how often teachers focus on each of the elements varied between 2.8 and 3.9 (the scale being 1-5). When differentiating teaching, most attention was paid on teaching methods (3.9), learning environments (3.5), and evaluation of learning (3.2). Only support materials for learning and teaching (2.9) and teaching arrangements (2.8) got the total Mean under 3 in teachers' evaluations. It is worth noticing that these elements are, however, at quite the same level. Thus, it can be stated that none of the elements became overly emphasized or randomly mentioned in the data.

Next, we will introduce the findings as they appeared regarding each element of the five O model: (1) teaching arrangements; (2) learning environment; (3) teaching methods; (4) support materials for learning; and (5) evaluation of learning

The use of various teaching arrangements

In the five-O model, Roiha and Polso (2018) include flexible grouping, co-teaching, mutual timetable, and remedial teaching in the element of teaching arrangements.

Flexible grouping was the most used teaching arrangement among teachers in this

study. Almost 98 % of the teachers used it. The mean of using the flexible grouping was 3.6. Table 1 illustrates that in average, teachers used also teaching assistants and co-teaching every now and then. Remedial teaching and mutual planning of the daily timetable were used more infrequently. Mutual planning of the timetable makes it possible to co-teach with your colleague teacher, and sometimes with the special education teacher, too. For example, teachers may set the mother tongue lessons at the same schedule and divide the students according their learning phase, when they practice reading.

The variation in using these teaching arrangements was interesting. In addition to flexible grouping, almost all teachers used remedial teaching. However, remedial teaching was not as regularly used as flexible grouping, co-teaching, and help from teaching assistants. When it comes to medians, it seemed that flexible grouping was used by most teachers while other arrangements were more infrequently used.

Likewise, 44% of teachers used rewards frequently or all the time but about a third (31%) never. Clearly, shortened school days were used the most infrequently (77% reported never using it). However, the reason for this answer is likely the fact this is a special arrangement that teachers cannot decide themselves without multiprofessional expert group (Finnish National Board of Education, 2016).

<<<Table 1. here>>>

The reasons for using and choosing teaching arrangements were reflected by 28 teachers. Again, the categories of resources and student-centered solutions were mentioned. Also collaboration was highlighted as one of the reasons. When it came to the selection of teaching arrangements, 21 teachers mentioned that school resources,

time allocation, school transportation, and lack of opportunity to influence on decision-making among other extrinsic reasons restricted the choices regarding differentiated teaching arrangements.

Some arrangements are possible, others are not. (Teacher 3)

Teachers did also student-centered choices. They paid attention to students' skills and knowledge, needs, and learning challenges, and overall best for them.

According to the learning challenges and needs. (Teacher 8)

Based on what is the best solution for the student. (Teacher 10)

In this category, teachers also mentioned collaboration with other teachers. For two teachers, this was the only reason for choosing teaching arrangements.

In collaboration with the parallel grade teacher and special education teacher. (Teacher 36)

The ways of structuring learning environments

The five-O model divides learning environments into three elements: physical, social, and psychological learning environments (cf., Westling Allodi, 2007). Altogether nine items were included in this section of the survey. There were four items concerning physical environment (seating position, various working spaces, classroom coziness and organization and labels for objects). For social and psychological learning environments there were five items (creating a sense of community, teacher-led pair or group arrangements, preventing bullying/ interventions to bullying, differentiating of transition situations and differentiating breaks). The section describing the arrangements of the learning environments shows that teachers concentrate on structuring the learning environments mainly during their lessons or inside their classrooms (Table 2).

All teachers molded the physical learning environment by seating positions: 98% of teachers paid attention to seating positions "quite frequently" or "all the time"

(mean being 4.6). In addition, the use of classroom cosiness and organization got the mean of 4 meaning that teachers paid attention to these elements regularly. The labels for objects did not appear popular among teachers (mean 2.1.). However, this is a method used mainly with smaller students and since this study included also secondary school teachers, this finding is not considered relevant.

In structuring the social and psychological learning environments, prevention of bullying (4.3), teacher-led pair or group arrangements (4.2) and creating a sense of community (4.1) were all elements that every teacher had done, and over half of them had used these more than “quite frequently”. When it comes to giving attention to transition situations or students’ informal time during the breaks, over half (54 %) of the teachers did not employ differentiating, the mean being less than 2 (1.9). However, they used differentiating quite frequently (mean 2.7) during transition situations in general.

<<<Table 2. here>>>

Open-ended question about learning environment was answered by 25 teachers. Also here, the main criteria were the differentiation based on pupils needs (N=13 teachers). Teachers did the necessary adjustments based on students’ needs for learning and securing the peace for studying. They wanted to make sure the learning environment was appropriate.

According to students’ special needs. (Teacher 8)

According to students’ hopes, student group, and individual needs. (Teacher 17)

Not surprisingly, the limited resources determined the level of how the teachers could adjust the learning environment. Eight teachers mentioned available premises, time allocation, and available monetary resources.

Mainly what the time resources let me do. (Teacher 11)

Money determines a great deal. (Teacher 13)

The third category covered the classroom atmosphere, which was referred by six teachers. They wanted to mold the environment cozy and safe both physically and psychologically.

—homeliness, e.g., couch group, lamps, indoor plants, etc. (Teacher 7)

—to be cozy, and to have room to walk around and work in various groups according to the situation. (Teacher 16)

The implementation of teaching methods

In their five-O model, Roiha and Polso's (2018) basic premise in implementing teaching methods is both whole class approaches that facilitate every student's learning process and the implementations which support individual students. In this survey, we chose items from both categories, altogether five items. Concerning the whole class approach there were two items: the clarity, structure and routines in teaching, and supported instruction meaning the utilizing the multiple ways of giving instructions, supporting diverse learners as a basic assumption. Three items emphasized the individual learner's needs: rewarding of success, individual support in order to enhance learning and individual homework and individualized learning material.

Various methods of differentiated teaching were almost equally popular with the total mean of 3.9. However, teachers emphasized the most the clarity, structure, and routines of teaching (av. 4.3). In addition, rewards from successes were used often (mean 4.1). Individualized progress in classes and homework was the third most common method of differentiated teaching but with a mean under 4 (3.8). Also medians in Table 3 show that teachers used almost all methods of differentiated teaching at least every now and then, and most of them frequently.

<<<Table 3. here>>>

Only singular teachers reported that they did not use methods of differentiated teaching at all. This means that all mentioned methods were in actual use mostly frequently. According to means, individualized support materials for learning were used the least in this data, but even in this case, all teachers except one used these materials at least sometimes.

The open-ended question provided further information about how teachers selected which methods of differentiated teaching they used. Altogether 23 teachers answered to this question. The methods were chosen mainly because they were considered student-centered (N=16 teachers mentioned it). Student-centered methods were chosen as needed based on teachers' evaluations on the students' learning styles and backgrounds. They also wanted to keep weaker students on track and were worried about their ability to understand the learning materials.

—the pace students advance. (Teacher 12)

According to the student's needs; suitable material for everyone. (Teacher 4)

For the whole grade's common good and based on the student's own current situation.
(Teacher 22)

Few teachers mentioned resources (N=3) and good practices (N=3) as the guiding factor for choosing methods. Teachers mentioned resources such as sufficient time and availability of individualized learning materials and spaces. Teachers also choose differentiated teaching methods based on their practical experience of such situations.

You have to consider, among others, the premises, group size, and time management.
(Teacher 6)

Based on the available resources. (Teacher 12)

Good practices based on my experience. (Teacher 32)

The use of different support materials for learning and teaching

In the five-O model, support materials for learning and teaching are divided into differentiated use of materials and aids for learning and concentration (Roiha & Polso, 2018). Support materials for teaching and learning were not as widely emphasized by the teachers as the previous three areas of differentiated teaching in the five-O model (the mean was 2.9). All teachers did use information technology and e-materials at least sometimes and 77% of them even often or all the time. This was the most used support with the mean of 4.2 among teachers. Other materials, such as learning materials from different grades and aids for concentration (ear plugs, screens, etc.) were used every now and then (means being around 3). The results of this dimension are shown in table 4.

<<<Table 4. here>>>

The open-ended question about support materials were answered by 27 teachers. Again, the choice of materials were made based on student-centered reasons (N=20) or resources (N=8 teachers). The students' abilities and skills, personal study plans, and coping directed teachers' choices.

—what kind of abilities each student has to study the learning material. (Teacher 5)

According to the level of support the student needs, as well as discussions / charts with managing teacher and special education teacher. (Teacher 18)

Resources, such as time and budget, limited the use of support materials according to teachers' evaluations.

I do my best; there is not enough time. (Teacher 11)

[I use] the tools there are at school, we cannot buy new ones. (Teacher 4)

The implementation of methods for evaluation of learning

Evaluation of learning is an important part of differentiated teaching (Roiha & Polso, 2018). Based on evaluation, teachers receive information about the student's current level of skills and knowledge and may set new learning goals based on this information (see also Moon 2005). The purpose is to create evaluation culture that enhances participation, supports students' understanding about their own learning processes, illustrates students' development, and is fair and versatile (e.g., Pollard, 2005).

The questionnaire included eight methods of evaluation, and of them, five were used at least sometimes by the teachers. The total mean of the evaluation of learning was 3.2. All teachers used exams and learning and evaluation discussions. However, homework was the most commonly used (mean 4.0). Exams (3.8), self- and peer-evaluations (3.7), and learning and evaluation discussions (3.6) as well as presentations and learning projects (3.5) were somewhat frequently used by teachers (see Table 5).

As Table 5 shows, clearly less used methods were learning diaries, portfolios, and individually performed common goals, also based on medians. Only about 10% of teachers mentioned that they used portfolios and learning diaries regularly. However, a little over half of the teachers used them as evaluation methods at least sometimes. In average, they were used seldom.

<<<Table 5. here>>>

The open-ended question regarding the reasons for using evaluation methods were answered by 22 teachers. Four categories could be found from the data: subject-based evaluation, student-centered evaluation, versatile evaluation, and resources. Evaluation

methods were chosen often according to the methods and contents related to the school subject (N=9 teachers mentioned this).

The content of my subject determines it mostly... (Teacher 3)

Methods that suit the school subjects -- (Teacher 23)

Student-centered reasons for choosing evaluation methods were mentioned by seven teachers. They emphasized the student's level of development, various types of learners, and individualized school subjects.

According to students' needs. (Teacher 25)

Rest of the teachers mentioned also versatile evaluation methods and resources influencing their choices of methods. While the aspiration was to use multidimensional and varied evaluation of learning, lack of time or materials could narrow the choices.

I try to alter the practices. (Teacher 36)

Learning material or lack of it determines a lot - - (Teacher 12)

Discussion

A generally approved principle in differentiation is that teaching is addressed to all students and is both pro-active and reactive (Spratt & Florian, 2015; Tomlinson, 2014).

Differentiated teaching pursues to pay attention to difference in students—yet, this necessitates strong familiarity with the students' needs, abilities, and interests from the teacher. Likewise, how teachers themselves perceive differentiation seems to vary.

Regardless of the definition, teachers have to make sure students would not underachieve but reach their individualized learning goals.

As the findings showed, differentiation is not a matter-of-course. According to Peterson and Hittie (2010), the more teachers use multi-level teaching strategies, the less there is need for developing individualized differentiation strategies and molding the curriculum. Although the teachers in this research noticed the elements of five-O

model somewhat well, there were also some differences. For example, teaching arrangements remained merely unadjusted. This finding is important because the teachers also reported that they had only little opportunities to influence teaching arrangements. Various factors that the teachers could not affect were mentioned when giving reasons for choosing different teaching arrangements. Lack of resources and management could explain some of the choices, while some special arrangements also require decisions from a multiprofessional expert group, as mentioned also earlier. It seemed that most resources were available for teaching assistants' support (see also Conderman & Hedin, 2016) and information technology and electronic materials (see also Bouck, 2016). Actually, Lakkala et al. (2018) have also reported that Finnish teachers find co-teaching, collaboration, and supplementary teachers very positive and beneficial for creating new solutions at schools (see also Ahtiainen et al., 2011).

An important finding was that the teachers made their decisions on differentiated teaching on a student-centered basis. This was clearly mentioned in all elements of the five-O model, but mostly with support materials, teaching methods, and learning environment. Teachers emphasized students' skill levels and needs for support as the basic reason for their choices. For them, the need for differentiation aroused from students and their needs. Our results draw a picture of a new kind of modern teacherhood where student-oriented decisions serve as a basis for teachers professional actions. Student-orientation becomes possible only after when teachers have competence to adjust the curricula according to their students' needs.

Conclusion

Although these findings cannot be considered generalizable results, the influence of resources provided for differentiation seemed to become emphasized. Clearly, the lack

of resources limited the realization of versatile and individualized teaching. The question is whether, in this case, it is even possible to support each student's learning and growth at school in a way that the current ethos for inclusive education expects (cf. Card & Kruger, 1996; Hanushek, 1997). The finding is supported by Koivuharju and Komulainen's (2016) research among teachers and principals. Teachers in their research reported that financial resources strongly determined how fully they could implement inclusion (Koivuharju & Komulainen, 2016). Bettini et al. (2016) have also reported that for teaching to be effective with students with special needs, administrative support and school culture play a crucial role.

Inclusion has been seen as an ideology promoting students' equality (Waitoller & Artiles, 2013), and differentiated teaching is the means for this type of special education. However, Määttä, Äärelä, and Uusiautti (2018) reminds that a significant challenge for teaching is the question of whether the school and teachers can direct their action properly. Can students actually participate? Do they have equal opportunities? Moreover, there is always the challenge that the teacher does not have enough expertise to meet the various needs for support even if resources were plentiful. Indeed, this study highlighted the multidimensional nature of choices and activities taking place at school, that was recognized by Määttä et al. (2018) too:

Learning and learning results, learning environments and teaching arrangements are often a sum of mutually contradictory factors. Likewise, the relationship between reasons and consequences is usually complicated when planning teaching and support for special needs. (Määttä et al., 2018, p. 17)

This research revealed something about the basis of differentiated teaching in practice in Finnish schools at the moment. The special focus was on how teachers themselves perceive it. The municipalities chosen to this research represented the variety in resources and populations in Finland and thus provided an interesting glimpse of how

teachers understand and implement differentiated teaching. The study also provided information about the usability of Roiha and Polso's five-O model of differentiated teaching. The findings imply that the model covers the elements of differentiated teaching in a relatively good and balanced manner.

However, it is not possible to make any straightforward interpretations because the reality of teaching and circumstances at schools vary as do teachers with their skills, attitudes, and opinions, too (see also Johnson & Semmelroth, 2014). Eventually, the most important goal of education can be seen to be to encourage students to recognize their own particular strengths and developmental potential by focusing on positive experiences that enhance development and learning (Leskisenoja & Uusiautti, 2019; see also Lappalainen, Hotulainen, Kuorelahti, & Thuneberg, 2008). Still, further research on the distribution of resources and innovative ways of enhancing differentiation are needed. What was comforting was however to discover that regardless of resources or other extrinsic factors, teachers considered differentiation important and seemed to be dedicated to making sure that all their students will be provided with opportunities to learn and succeed.

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Table 1. The means and medians for using teaching arrangements (scale: 1 being never - 5 being all the time)

Teaching arrangement	Mean	Median
Flexible grouping	3.6	4
Teaching assistant	3.3	3
Co-teaching	3.1	3
Remedial teaching	2.9	3
Rewards	2.8	2
Mutual timetable for lessons	2.5	3
Shortened school day	1.5	1

Table 2. The means and medians for molding the learning environment (scale: 1 being never - 5 being all the time)

Learning environment	Mean	Median
Seating	4.6	5
Preventing bullying/ interventions to bullying	4.3	5
Teacher-led pair or group arrangements	4.2	4
Creating a sense of community	4.1	4
Classroom cosiness and organisation	4.0	4
Various working spaces	4.0	4
Differentiating of transition situations	2.7	3
Labels for objects	2.1	2
Differentiating of students' informal time during the breaks	1.9	1

Table 3. The means and medians for using methods of differentiated teaching (scale: 1 being never - 5 being all the time)

Teaching methods	Mean	Median
Clarity, structure, and routines of teaching	4.3	4
Rewards from successes	4.1	4
Individualized progress in classes and homework	3.8	4
Individual support	3.7	4
Individualized learning materials	3.4	3

Table 4. The means and medians for using support materials for learning and teaching (scale: 1 being never - 5 being all the time)

Support materials for learning and teaching	Mean	Median
Information technology and e-materials	4.2	4
Illustrative materials	3.2	3
Learning materials from different grades	2.9	3
Individualized textbooks	2.8	3
Aids for concentration	2.7	3
Timers	2.4	2
Simple language texts	2.1	2

Table 5. The means and medians for using methods of evaluation (scale: 1 being never - 5 being all the time)

Evaluation of learning	Mean	Median
Homework	4.0	4
Exams	3.8	3.5
Self- and peer-evaluations	3.7	3.5
Learning and evaluation discussions	3.6	3
Presentations and learning projects	3.4	3
Individually performed common goals	2.8	2
Portfolio	2.3	2
Learning diaries	2.1	2